

Simple Device for Automatically Transferring Broth Cultures

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A simple device is described for automatically transferring broth cultures from one tube to another by means of a tilting platform.

During recent investigations on the detection of coliforms, a simple device for automatically transferring inoculum from presumptive to confirmed media was developed. In view of our success with this device, especially during off-duty hours, it was felt that such a unit might be useful in other microbiology programs. The basic components of the transfer device are shown in Fig. 1. To transfer broth culture from one tube to another, two conventional test tubes were connected near the top with an open tube and strengthened with a solid glass rod near the bottom (Fig. 2). The two connected tubes were placed in a tilting device consisting of (i) a tilting platform, connected at two pivot points and containing holes for the tubes, (ii) a catch, attached to a solenoid, to release the platform, (iii) a 175-g weight to force the platform to tilt, (iv) a spring to return the platform to its original position, and (v) a stop to prevent back tilting of the platform (Fig. 1). A solenoid attached to a timer released the catch at a preset time.

In operation, one of the two connected tubes was filled with 20 ml of inoculated broth, the other tube was filled with 10 ml of sterile broth, and the tubes were positioned in the transfer device as shown in Fig. 1. After incubation and on signal from the timer, the solenoid released the catch, and the weight pulled the tilting platform downward and allowed the inoculated broth to flow across the connecting tube to the other tube of nutrient broth; a spring returned the platform to its original position. The amount of broth transferred from 20 ml and precision of the method varied from one pair of tubes to another. Mean values of broth transferred, in milliliters, and standard deviations for the following four pairs of tubes were: 0.72 ± 0.050 ; 0.58 ± 0.068 ; 0.53 ± 0.054 , and 0.45 ± 0.068 . Although these values were obtained with the design shown in Fig. 2, this basic configura-

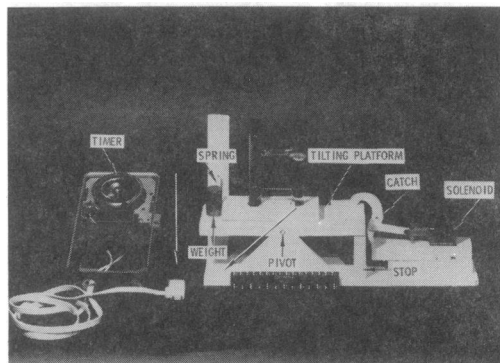


FIG. 1. Major components of the microbial transfer device; the two unmarked arrows indicate direction of tilting motion.

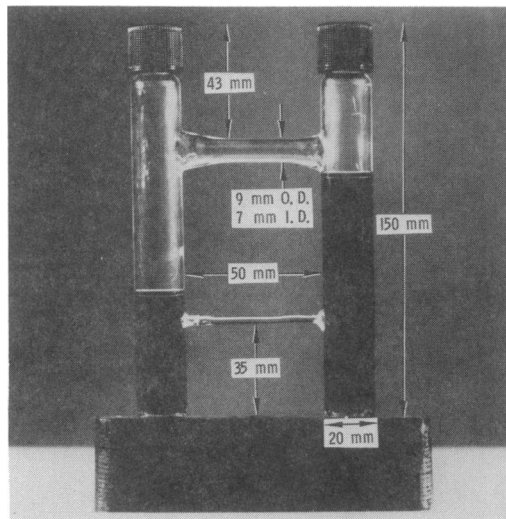


FIG. 2. Details of duo-arrangement of test tubes for transfer of broth cultures.

tion could be altered to fit specific experimental requirements.